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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/674,665

05/14/2001

Mordechai Segal

TI-30245

1323

23494

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10/18/2005

TEXAS INSTRUMENTS INCORPORATED

P O BOX 655474, M/S 3999

DALLAS, TX 75265

EXAMINER

LUGO, DAVID B

ART UNIT

PAPER NUMBER

2637

DATE MAILED: 10/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/674,665

Applicant(s)

SEGAL ET AL.

Examiner

David B. Lugo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01 August 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 23-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 23-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments, see page 4, filed 8/1/05, with respect to the rejection(s) of claim(s) 23 and 27 under 35 U.S.C. 102(b) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of a newly applied prior art reference.

### ***Claim Rejections - 35 USC § 103***

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. Claims 23, 24, 27 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over the publication by Benelli entitled "Two new coding techniques for diversity communications systems" in view of Kaewell, Jr. et al. U.S. Patent 5,402,451.

Regarding claims 23 and 27, Benelli disclose a diversity system in Figure 1 (p. 1531) comprising a 1:N rate encoder (coder) coupled to an input data stream configured to reproduce a symbol N times, a transmission arrangement configured to use a plurality of outputs to transmit each symbol using a distinct channel (channels 1-m), and a receiver coupled to the outputs of the transmission arrangement for combining the signals via a signal combiner to output an estimate of the symbol.

Benelli does not expressly state the signal combiner uses soft-combining of the signals.

Kaewell, Jr. et al. disclose a diversity combiner system where soft-combining of the signals is performed, as in a maximal ratio combiner (see abstract).

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It would have been obvious to one of ordinary skill in the art to use the soft-combining of signals as taught by Kaewell, Jr. et al. in the combiner of Benelli because such combining allows for the best set of diversity combining weights to be determined for different operating environments (col. 1, lines 51-53).

Regarding claims 24 and 28, Benelli discloses that the soft-combining includes weighted combining (col. 1, lines 51-53; col. 2, lines 52-56).

4. Claims 25 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Benelli in view of Kaewell, Jr. et al. as applied to claims 23 and 27 above, and further in view of Lathrop U.S. Patent 5,701,427 (cited in previous Office action).

Regarding claims 25 and 29, Benelli in combination with Kaewell, Jr. et al. disclose a communication arrangement as described above, but do not expressly disclose transmitting an original message using one of the channels and performing retransmission using a remaining channel.

Lathrop discloses a communication arrangement where an information message is transmitted over a channel on a communications link 12, and a second retransmit channel is used to transmit retransmission information (col. 7, lines 22-33).

It would have been obvious to one of ordinary skill in the art to use the teaching of Lathrop of a channel for retransmission that is separate from that used to transmit an original message in order to allow for retransmission of data not accurately received without interrupting the transmission of the original message.

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5. Claims 26 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Benelli in view of Kaewell, Jr. et al. as applied to claims 23 and 27 above, and further in view of Lin et al. U.S. Patent 5,703,911.

Regarding claims 26 and 30, Benelli in combination with Kaewell, Jr. et al. disclose a communication arrangement as described above, but do not expressly disclose that the transmission channels are used to transmit information bits using a delay-encoded mapping scheme.

Lin et al. disclose a delay-encoded mapping scheme in Fig. 2 where a plurality of bits are used to represent a transmitted symbol.

It would have been obvious to one of ordinary skill in the art to use the delay encoded scheme of Lin et al. in the system of Decker et al. because such coding allows for increased transmission reliability (col. 1, lines 5-19, line 64 to col. 2, line 12).

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David B. Lugo whose telephone number is 571-272-3043. The examiner can normally be reached on M-F; 9:30-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on 571-272-2988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

David Lugo  
10/14/05

A handwritten signature in black ink, appearing to read "Jay K. Patel", with a long horizontal stroke extending to the right.

**JAY K. PATEL**  
**SUPERVISORY PATENT EXAMINER**